MONTANA FISH, WILDLIFE & PARKS
PROJECT PERFORMANCE REPORT

STATE: **MONTANA**
AGREEMENT: **T - 5 - 1**
GRANT TITLE: **Sauger Telemetry in the Powder and Tongue Rivers**

PERIOD COVERED: **February 3, 2003, through December 31, 2003**

Location

The study occurred in the Powder, Tongue, and Yellowstone Rivers in southeastern Montana.

Objective

The objective of this project was to quantify use by sauger of the Powder and Tongue rivers for spawning.

Discussion

The sauger (*Stizostedion canadense*) is a large, predatory fish in the family Percidae, is native to Montana, and was designated as an S-2 "Species of Special Concern" in Montana by the Natural Heritage Program and the Montana Department of Fish, Wildlife and Parks. Sauger occur throughout the lower Yellowstone River basin, although very little is known about where they spawn, when and where they stage to spawn, and the spawning movements. This project attempted to utilize radio-telemetered sauger from the Powder and Tongue River systems to expand upon a recently completed study of sauger to help answer questions critical to effective management and conservation of sauger in the lower Yellowstone River basin.

The baseline information collected from this study will be used to help develop the comprehensive fish and wildlife plan Montana Fish, Wildlife and Parks has agreed to develop in compliance with the Wildlife Conservation and Restoration Program (WCRP) and State Wildlife Grants Program (SWiG). This baseline data will also help enable resource managers to better understand and manage the spawning habitat use, spawning movements, and spawning timing of native sauger.

Accomplishments

Seasonal movement, aggregation, and habitat use were investigated by telemeterizing and tracking 30 fish in 2003. This data expanded upon telemetry data collected on 30 sauger in 2001, and 31 sauger in 2002. Use of tributaries by sauger for spawning was assessed using the fish telemeterized in 2003. Exploitation rates were assessed by tagging 826 sauger with reward tags. Tag-shedding rate was estimated by double-tagging and non-reporting rate was estimated using postcards as tag surrogates.

Sauger aggregated near spawning areas in spring and subsequently dispersed 5 to 350 km to upstream home river locations where they remained for the rest of the year. During the spawning period, terrace and bluff pools, which are unique geomorphic units associated with bedrock and boulder substrate, were positively selected while all other habitat units were avoided. Tributary use during the spawning period was documented for only one fish (3.3%).

Following movement to home river locations, sauger used most habitat units in proportion to their availability, but selected reaches of specific geologic types. Exploitation occurred primarily in early spring and late autumn. Annual exploitation rates were low (15.9-20.1%) and were lower in spring when sauger were aggregated (2.9%) than in autumn when they were dispersed (24.2%). Annual tag-shedding rate of both tags was low (2.1%), nonreporting rate was high (61.5%), and annual survival was high (61.3%). Entrainment in irrigation diversions accounted for as much as one third of non-fishing mortality.

Angler harvest, especially during periods when fish are aggregated, is unlikely to be the primary factor preventing sauger recovery. Entrainment in irrigation diversions may cumulatively be a major source of mortality for sauger on the lower Yellowstone River. Sauger demonstrate selection for different resource units throughout the year. Seasonal movements between important resource units can be large, emphasizing the importance of maintaining connectivity to a high diversity of habitat types over large spatial scales.

A final report of 2001-2003 research will be completed in May, 2004 in the form of a Masters Thesis that will be provided to the USFWS.

Variances

None

Expenditure Recap:

Grant Agreement

	Federal Share		Non-Fed Share		Total
Direct:	25,000.00		8,333.33		33,333.33
Indirect @ 20%:	5,000.00		1,666.67		6,666.67
Totals:	30,000.00	75.00%	10,000.00	25.00%	40,000.00

Actual Expenditures

	Federal Share		Non-Fed Share		Total
Direct:	25,000.00		9,920.00		34,920.00
Indirect:	4,765.25				4,765.25
Totals:	29,765.25	75.00%	9,920.00	25.00%	39,685.25

$234.75 = federal funds obligated, but unspent

Indirect costs were assessed at actual, approved rates (19.1% for FY03, 18.9% for FY04). The non-federal share of funding was in the form of waived overhead (41.5%) from Montana State University, which represented a value of $10,375.

Project Personnel

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